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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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September 7, 1989

TO: Holland Shepherd, Permit Lead

FROM: Scott Johnson, Reclamation Engineer

RE: Subsidence Monitoring, Moab Salt, Incorporated, Cane Creek Potash Mine, M/019/005, Grand County, Utah

In lieu of providing the Division with an acceptable field monitoring plan on subsidence levels at the Cane Creek Operation, Moab Salt recently provided an engineering report which claims most subsidence on the property has already occurred, and any further subsidence will be minimal. The scope of this report, and the data used in its preparation does not warrant an exemption for the subsidence monitoring plan requirement.

Below are my comments on the Schnabel Engineering Associates (SEA) report:

(1) SEA claims that the report conclusions are limited to the accuracy and completeness of the available data. Due to the proximity of the mine to the Colorado River, I don't think the Division can rely on conclusions based on such data.

(2) SEA assumes that only the original mined area is, or has been, affected by solutioning. SEA further assumes that ore greater than ten lateral feet from the mined zone is not affected. This appears to conflict with their theory that solution mining will consume up to 100 percent of the pillars and blocks.

(3) SEA claims that subsidence above this potash mine will resemble subsidence above a longwall panel in a coal mine. It is apparent that subsidence, to one degree or another, has and will continue to occurr below the Colorado River.

(4) SEA states that solution mining will accelerate subsidence. The Division agrees and feels that the collapse of the overburden into the voids will force the injected brine to increase the lateral extent of the mine. This mine enlargement will further impact the Colorado River.

(5) Finally, SEA claims that the majority of subsidence has already taken place. Although the Division agrees with this assumption, further subsidence is anticipated, and a subsidence monitoring plan is necessary to determine the impacts of the subsidence.

Our files indicate that Texas Gulf ran aerial surveys on the property. Additionally, Texas Gulf established a network of level control stations for the express purpose of monitoring surface subsidence. Although surface subsidence was not detected during the underground room and pillar extraction of the ore, no data has been provided since the solution mining process began in 1970.

The baseline data for this subsidence monitoring has clearly been established. The operator should locate and provide the Division with this available baseline data within 30 days. My proposal is to request that the operator immediately (within 90 days) survey the network of level control stations and aerially survey (within 2 foot accuracy) the property to compare this data to the baseline data. The results of these surveys should be sent to the Division within 30 days of availability for review. Depending on the results of these findings, I propose these surveys be performed a minimum of every five years thereafter.

jb
cc: Loren Morton, DWPC
Lowell Braxton
MN17/68-69